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LYCENCHELYS BULLISI, A NEW EELPOUT FROM
THE GULF OF MEXICO

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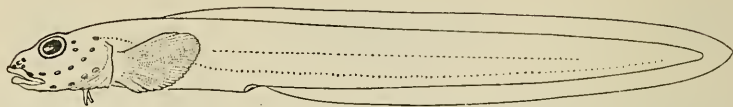
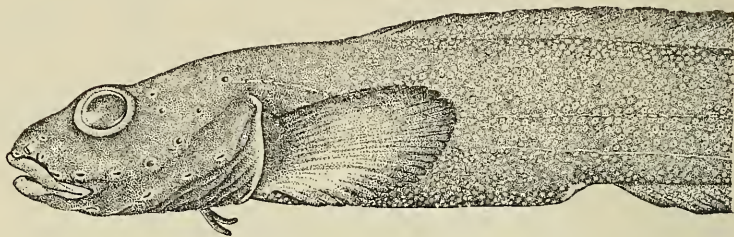
The two specimens of eelpout described in this paper were captured by the Bureau of Commercial Fisheries vessels "Oregon" and "Silver Bay" during exploratory fishing investigations in the Gulf of Mexico. They represent, to the best of my knowledge, the only known occurrences of the family Zoarcidae (excepting the bathypelagic genus *Melanostigma*) in the Gulf of Mexico. It is not possible to identify these fishes with any known eelpout, and I therefore consider them to represent a species new to science. The nomenclature of the head pores follows Andriashev (1955). Vertical fin ray elements and vertebrae were counted from an X-ray photograph. Illustrations are by Mildred H. Carrington. I am indebted to Dr. C. Richard Robins of the University of Miami and to Dr. Giles W. Mead of Harvard University for allowing me to examine material in their care.

Lycenchelys bullisi, new species

Holotype: U. S. National Museum no. 188232, "Oregon" station 4038, 28°51' N, 88°41' W, 400-410 fathoms (732-750 m); 3 Nov. 1962; 40-foot flat trawl; off the mouth of the Mississippi River. Although no bottom temperature was taken at station 4038, the bottom temperature at 300 fathoms (549 m) at nearby station 4005, 29°07.5' N, 88°09' W, was 8.5°C.

Paratype: University of Miami Marine Laboratory no. 5363, "Silver Bay" station 1195, 24°26' N, 83°33' W, 350 fathoms (640 m); 8 June 1959; 40-foot flat trawl; west of Key West.

Diagnosis: A *Lycenchelys* with a relatively short body, depth behind vent into total length 11.2 to 12.2 times; a short head, 6.6 to 6.8 in total length; a large eye, 3.6 to 3.9 in head; a relatively great preanal distance, 2.8 in total length; two lateral lines; plain, unpatterned coloration.

FIG. 1. Holotype of *Lycenchelys bullisi*. Outline drawing.FIG. 2. Holotype of *Lycenchelys bullisi*.

Counts and measurements: Measurements in millimeters; holotype first, followed by paratype in parentheses. Dorsal fin rays 100 (100); anal fin rays 83 (83); caudal fin rays (including only those rays which articulate with the hypural) 11(10); pectoral fin rays 18 (17); ventral fin rays 1 (1); vertebrae (not including hypural) 24 (24) abdominal + 81 (79) caudal = 105 (103); total length 180 (173); standard length 174 (167); snout to anal fin 64 (62); head length 27.1 (25.5); snout length 6.6 (7.0); horizontal diameter of eye 7.5 (6.6); postorbital length of head 13.0 (12.4); tip of snout to origin of ventral fins 21.4 (20.5); length of pectoral fin 19.0 (18.5); depth of body behind level of vent 16.0 (14.2); depth of body at ventral fin 14.0 (14.5); interorbital width 5.6 (5.4); gill opening 8.6 (9.0).

Description: Body relatively short for a *Lycenchelys*, compressed. Greatest depth of body in the trunk region anterior to the vent, decreasing in depth only very gradually along the tail. Width of trunk at level of vent about one-half depth; body more compressed posteriorly. No keel-like ventral fold on the abdomen.

Unpaired fins confluent, their height nearly uniform. Origin of dorsal fin on vertical through midlength of the pectoral fin; length of pectoral fin equal to about one-half the distance from origin of pectoral fin to origin of anal fin. Pectoral fin inserted vertically immediately behind opercle. Each ventral fin ray 3 to 4 mm long.

Scales absent from head, predorsal area of dorsum, and from side of body above proximal one-fourth of pectoral fin. Remainder of body with scales, as are the bases of the vertical fins. Thirty to 35 scales between vent and base of dorsal fin (only 24 shown in Fig. 2). Lateral line originating at the occipital pore, whence it extends posteriorly in a straight line for about 10 mm, then descends to the lower third of the

body and extends posteriorly to almost the end of the tail; very difficult to trace beyond the vent. Another lateral line originates in the midline close to the level of the hind margin of the pectoral fin and extends straight back for a distance of 65 to 70 mm, becoming indistinct posteriorly (virtually impossible to see in the paratype).

Head width about equal to head depth, both at nape and at interorbital. The dorsal profile of the head descends gently from the nape and is interrupted by the dorsal rim of the eye in the holotype, not in the paratype. In the holotype an inflection occurs near the level of the tubular anterior nostril, whence the profile descends more steeply. The snout of the paratype is smoothly rounded. Snout short, about equal in length to horizontal diameter of eye. The nostril tube is closer to the tip of the snout than to the anterior rim of the eye and is located a distance about equal to its own diameter above the upper lip. The posterior nostril resembles the sensory pores and is located above and behind the nostril tube.

Seven pores in the maxillary series, the first in front of the anterior nostril; two postorbital pores, both behind the eye; a single occipital pore, near the upper angle of the opercle; a single preopercular pore, about midway between the hind margin of the eye and the hind margin of the opercle; mandibular series with seven pores, the anterior four, which are located along the lower jaw, separated by prominent folds of skin in the holotype.

Posterior margin of maxillary not reaching beyond level of midpoint of eye. Eye large, 3.6 to 3.9 in head. Interorbital region slightly concave in holotype, flat in paratype. Mouth slightly inferior, loose skin on upper lip protruding only slightly, not expanded into fleshy flap.

A slight palatal membrane present. Teeth short and conical; on the dentary in a single row which expands into a patch near the symphysis. Each premaxillary with 6 to 12 teeth in a single row, a second row of 4 teeth at the symphysis in the holotype. Four or five teeth on the vomer, separated by a short gap from 4 teeth in a row on the palatine.

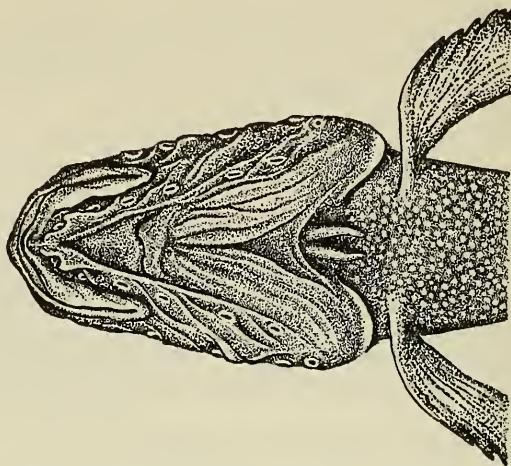
Last abdominal centrum lacking pleural ribs on its parapophyses.

Body color of the holotype a uniform light brown; the darkly pigmented peritoneum shows through the trunk region; the fins are dark. The paratype is faded and was probably dead when preserved.

The holotype is a ripe female containing about 10 large granular unfertilized eggs. One egg measured 3.5 by 4.5 mm. The paratype is probably a male.

Relationships: With the exception of its less elongate body and fewer vertebrae, *L. bullisi* fits fairly well the tentative definition of *Lycenchelys* proposed by Andriashev (1955). Although use of relative body length would place *L. bullisi* in *Lycodes*, the presence of prominent head pores and a palatal membrane are more important characters and are better reasons for relating the species to *Lycenchelys*.

L. bullisi is separable from any known *Lycenchelys* on the basis of its relatively short head, snout and body. It seems to have its closest rela-

FIG. 3. Holotype of *Lycenchelys bullisi*. Ventral view of head.

tionships with a group of plain-colored species which previous authors have described in *Lycodes* (where they would be relatively elongate forms); these are *L. microcephalus* Jensen (1904) from 1461 meters southwest of Iceland; *L. atratus* Vladykov and Tremblay (1936) from 150 meters in the estuary of the St. Lawrence River, and *L. incisus* Garman (1899) from 1261 meters in the Gulf of Panama. *L. bullisi* is separable from all three of these species on the basis of counts and

TABLE 1.—Counts and measurements expressed as percent of total length in the types of four species of eelpout

	<i>L. bullisi</i>		<i>L. micro-</i>	<i>L.</i>	<i>L.</i>
	Holotype	Paratype	<i>cephalus</i>	<i>atratus</i>	<i>incisus</i>
Total length (mm)	180	173	81	255	196*
Sex	♀	♂?	immature	♀	♀
Dorsal rays	100	100	87	112	101
Anal rays	83	83	71	93	84
Pectoral rays	18	17	15	22	18
Vertebrae	105	103	—	116	—
Preanal distance	35.5	35.8	38.3	41.2	36.0
Head length	15.1	14.7	17.3	22.2	20.6
Snout	3.7	4.0	—	—	5.9
Eye diameter	4.2	3.8	—	4.3	2.2
Body depth at vent	8.9	8.5	8.0	10.2	8.0

* The smaller of two syntypes. The larger is broken behind the vent.

proportions. Comparisons are presented in Table 1. The data for *L. microcephalus* and *L. atratus* are from descriptions of these species. The data for *L. incisus* were taken from one of the syntypes.

Nomenclature: Named for Harvey R. Bullis in recognition of his contributions to knowledge of the marine fauna of the tropical western Atlantic.

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